

WHAT IS CLAIMED IS:

1. A liquid thermosetting sealing agent for a polymer electrode membrane fuel cell having separators and
5 a membrane electrode assembly laminated,

the viscosity said liquid thermosetting sealing agent at the application being from 1,000 to 9,000 Pa.S.

2. The liquid thermosetting sealing agent for a
10 polymer electrode membrane fuel cell as claimed in Claim 1, wherein the temperature range for the curing condition of said liquid thermosetting sealing agent for the polymer electrode membrane fuel cell is from 100 to 130°C, and the controlled temperature range thereof is a predetermined
15 temperature $\pm 5^\circ\text{C}$.

3. The liquid thermosetting sealing agent for a polymer electrode membrane fuel cell as claimed in Claim 1, wherein the temperature range for the curing condition of
20 said liquid thermosetting sealing agent for the polymer electrode membrane fuel cell is $120^\circ\text{C} \pm 5^\circ\text{C}$.

4. The liquid thermosetting sealing agent for a polymer electrode membrane fuel cell as claimed in Claim 1,
25 wherein the hardness of the liquid thermosetting sealing agent for the polymer electrode membrane fuel cell after

curing measured according to a hardness test using a durometer at shore A defined in JIS K 6253 is in the range of from 30 to 70°C.

5 5. The liquid thermosetting sealing agent for a polymer electrode membrane fuel cell as claimed in Claim 1, which is based on a silicone series elastomer, a fluorine series elastomer, or isobutylene series elastomer.

10 6. A single cell comprising the lamination of separators and a membrane electrode assembly, and having the gaps between each separator and the membrane electrode assembly tightly sealed with a seal, said seal formed by thermally curing the liquid thermosetting sealing agent for
15 a polymer electrode membrane fuel cell as claimed in Claim 1.

20 7. A process for producing a single cell comprising the lamination of separators and a membrane electrode assembly, and having the gaps between each separator and the membrane electrode assembly tightly sealed with a seal, which comprise the following steps:

25 a step for applying the liquid thermosetting sealing agent for a polymer electrode membrane fuel cell as claimed in any one of claims 1 to 5 between each of the separator and the membrane electrode assembly at an application rate

preset depending upon the viscosity of said liquid thermosetting sealing agent for the polymer electrode membrane fuel cell, and the width and the height of the resulting seal; and

- 5 a step for curing said liquid thermosetting sealing agent for the polymer electrode membrane fuel cell at a temperature range of from 100 to 130°C for a predetermined period of time.

- 10 8. A polymer electrode membrane fuel cell composed of the lamination of a plurality of the single cell as claimed in Claim 7.

- 15 9. A process for recovering a polymer electrode membrane fuel cell comprising a plurality of single cells each comprising the lamination of separators and a membrane electrode assembly, and each having the gaps between each separator and the membrane electrode assembly tightly sealed with a seal, said process recovering an abnormal
20 seal in the case where the abnormality of the seal occurs; which comprise the following steps:

 a step for removing the single cell having the abnormal seal;

 a step for removing the abnormal seal;

- 25 a step for applying the liquid thermosetting sealing agent for a polymer electrode membrane fuel cell as claimed

in any of claims 1 to 5 between each of the separator and the membrane electrode assembly at an application rate preset depending upon the viscosity of said liquid thermosetting sealing agent for the polymer electrode
5 membrane fuel cell, and the width and the height of the resulting seal; and

a step for curing said liquid thermosetting sealing agent for the polymer electrode membrane fuel cell at a temperature range of from 100 to 130°C for a predetermined
10 period of time.